

DOCUMENT RESUME

ED 102 703

EA 006 824

AUTHOR McPartland, James M.; Epstein, Joyce L.
TITLE The Interaction of Family and School Factors in Open-School Effects on Students.
PUB DATE Apr 75
NOTE 28p.; Paper presented at American Educational Research Association Annual Meeting (60th, Washington, D.C., March 31-April 4, 1975)
EDRS PRICE MF-\$0.76 HC-\$1.95 PLUS POSTAGE
DESCRIPTORS Educational Sociology; Family Environment; *Family School Relationship; *Open Education; *Participant Satisfaction; *Power Structure; School Environment; School Organization; Secondary Education; *Self Actualization; Socioeconomic Status; Statistical Analysis; Student Development

ABSTRACT

Attendance in "open" versus "traditional" schools is shown to have small positive effects on student satisfaction with school life and student self-reliance, while differences in family authority structures are found to be of much more importance for these outcomes when student social class characteristics are statistically controlled. Two dimensions of the family authority system are defined: number of rules at home and student involvement in family decisionmaking. Both few rules and high involvement have positive effects on self-reliance, but few rules has a negative effect and high involvement a positive effect on student satisfaction with school life. Interaction effects between family and school authority structures failed to appear with consistency. These results are from a survey of 5,661 students in 4 secondary grades of 16 schools, which is part of a larger two-wave study that also includes 1700 elementary school students from 23 schools. The findings are discussed in light of the previous research, which has been been restricted to variables based on social class. (Author)

2015
AERA Presentation
Washington, D.C.
April 1975

**The Interaction of Family and School Factors
in Open-School Effects on Students**

James M. McPartland and Joyce L. Epstein

**Center for Social Organization of Schools
The Johns Hopkins University**

This paper is a first report on the survey of open schools conducted over the past two years at The Johns Hopkins Center for Social Organization of Schools. The goal of this survey is to learn how several important student outcomes are influenced by the authority structures of the home and school. The research plan emphasizes the interaction between family and school effects: that is, how the strength and direction of school effects may depend upon the type of family from which a student comes. This paper will report on two of the student outcomes covered by the study: satisfaction with school life and self-reliance.

The recent development of "open" instructional programs in some public schools provides an important research opportunity for educational sociologists. Before this, the most noteworthy widespread natural variations between schools involved the social rather than the organizational context of instruction.¹ Because of these existing contrasts in social environments, important research has been completed on the impacts of the peer groups or of teacher-student relationships on student development. At the same time, however, we know very little about the importance of alternative authority structures, or of differing formal task and reward systems for student learning, because there have been few significant comparisons outside of laboratory settings to study. This gap in our knowledge is important to

educational practitioners as well as to researchers, because it may be easier to implement changes in a school's formal organization than in its social composition or interpersonal relations.

The advent of "open" schools should change the character of our knowledge. Recent studies have indicated that typical "open" instructional programs differ from the more "traditional" approaches in the organizational structure of the learning environment, including changes in the authority-control systems (Walberg and Thomas, 1969). Some research has shown that, compared to the more traditional mode of operation, the open school provides more alternative activities to meet individual interests or needs, and gives the students a greater share of the authority for selecting assignments, supervising, progress and setting goals (McPartland and Epstein, 1973).

Thus, open schools which enroll a representative cross-section of students provide important natural environments for researchers to empirically examine how various dimensions of student development are related to the authority system of the learning environment, and how such relationships may be conditioned by student differences in earlier experiences at home or in previous grades.

The Johns Hopkins study of open schools is a two-wave longitudinal survey of the 7,200 students who comprise the total enrollment in five grades of the elementary, middle and high schools of a single suburban county in Maryland. The particular county was selected because for over five years it had organized schools at both the elementary and secondary levels which differed significantly in their authority structures. While open schools at the elementary level can now be found to some degree in many school systems, the

sampled system has been an unusual leader in developing variations in the authority structures at the middle and high school level. There are 23 elementary schools, 10 middle schools and 6 high schools in the selected county. On the average, the population is upper middle class, although there is a significant representation of every socio-economic level in the sample. This paper will report results from 5,661 students in grades 6 and 7 of the middle schools and grades 9 and 12 of the high schools.

Definition of Variables

Dependent Variables

Two student outcome measures will be analyzed in this paper: satisfaction with school life and student reliance.

- a. Student satisfaction with school life is an index constructed from 27 survey questionnaire items which deal with how much a student likes school, finds the classroom activities stimulating or rewarding and believes a good relationship has been established between teachers and students. Three sample items² from this scale are:

True or False: "I am very happy when I am in school."

Always, Often, Sometimes, Seldom or Never: "School work is dull and boring for me."

True or False: "I wish I could have the same teachers next year."

The average split-half reliability (KR-8) of this scale is .88, which is comparable to the reliability level of many standardized achievement tests.

- b. Student self-reliance is a scale constructed from eighteen questions from the student survey. These self-report items concern the degree to which an individual needs strong social approval or explicit directions before taking action. Two sample items³ from this scale are:

True or False: "I like the kind of teacher who tells me how to do my work and doesn't leave it up to me to figure it out."

True or False: "I feel very uncomfortable if I disagree with what my friends think."

This eighteen item scale has a reliability coefficient (KR-8) of .70 across the sample of grades 6, 7, 9, and 12, which is comparable to the values obtained for subscales of the most widely used personality instruments.

Some studies of the validity of this scale have demonstrated the value of the measure. Students and teachers were asked to write the names of other students who they felt were "independent: always speaks up even if others may disagree." The average self-reliance scale scores were compared between students who were nominated frequently as "independent" versus those who were seldom or never nominated. At each grade level, the averages were significantly higher for groups that received more nominations.⁴

Independent Variables

Three clusters of independent variables will be analysed for their relationship with the student outcome measures. These clusters are

(a) school authority structure; (b) family authority structure and (c) student background (including family socio-economic status).

a. School authority structure is measured by an index of "openness" of the school instructional program.

School openness is a measure based on the average student response to a 28-item index. Each of seven questions on the student questionnaire was repeated four times, to refer separately to each of four academic subjects. The first of these seven questions appeared in the following form.

Read each sentence below. Then, for each of the subjects, check the line that tells how often the statement is true for you in each subject.

1. In class, I must sit next to the same students.

	Always	Often	Sometimes	Seldom	Never
English	_____	_____	_____	_____	_____
Math	_____	_____	_____	_____	_____
Social Studies	_____	_____	_____	_____	_____
Science	_____	_____	_____	_____	_____

The remaining six questions, which also followed the same subject-specific format, were:

2. I can talk to other students while I work.

3. In class, I can move about the room without asking the teacher.

4. In class, the teacher stands in front of the room and works with the class as a whole.

5. When I am working on a lesson, the other students in my class are working on the same lesson.

6. Most days there are several assignments the teacher tells me I could select, and I choose the one I want to work on.

7. I could fall behind in my work without the teacher finding out about it for a couple of weeks or more.

For each of the 28 items (7 questions X 4 subjects) the percent of students who saw the program as "open"⁵ was calculated in each grade in each school. The measure of "school openness" is the average percent across the 28 items for the particular grade and school. For example, a score of 25.0 for a particular school means that on the average item 25 percent of the students report that the school is usually open in its mode of operation. Theoretically, the score could range from 0 to 100.0 for each school. The actual range of scores in this sample on the school openness measure is 11.5 to 39.7 in grade 5, 10.2 to 35.3 in grade 6, 14.4 to 37.3 in grade 7, 16.5 to 53.1 in grade 9, and 17.4 to 58.1 in grade 12.

A two-way analysis of variance (school by subject) of the student averages in each grade for each of the seven questions showed a statistically significant effect of schools for every grade and every question (beyond the .001 level), although the differences between subjects was not a significant source of variation. This analysis indicated that the present sample of schools provides the necessary contrasts on the organizational dimensions to examine relationships with student outcomes.

A principal component factor analysis was conducted to examine the structure which underlies the several questions used in the openness index. A clear structure of three main factors emerged: (1) variety of activities permitted, (2) degree of individualization of tasks, and (3) amount of student share of authority for task assignment and supervision.⁶ In the results to be reported here, an overall openness index is used which combines all factors. This index takes on 31 different values, representing 10 schools in the 6th grade, 10 in the 7th, 6 in the 9th and 5 in the 12th.

b. Family authority structure is measured by two separate indices.

One is the index of "rules in the home," which is a scale based on the count of behaviors from a checklist of 14 possibilities for which the student indicates a parental rule exists. Examples of the behaviors on the checklist⁷ are "time to be in on school nights," "use of telephone" and "how you wear your hair." High values on this scale are given for few rules, and low values for many rules.

The second measure of family authority structure is the index of "family decision-making style," which is constructed from the student responses to 12 survey questions that deal with the amount of involvement a student has in family decisions about his behavior. Examples of items in this scale are:

"How much do you take part in making family decisions about yourself? (Very much, much, some, very little, none at all)."

True or False: "My parents want me to follow their directions even if I disagree with their reasons."

The first index focuses on what rules exist, while the second deals with who makes the rules.⁹ The correlation between the two indices is .379, indicating a significant but not complete relationship between these two aspects of family authority.

c. Student background is a cluster of six measures which include indices of family socio-economic status.

The first three variables in this cluster are race, sex and age. The next three are indicators of socio-economic status as measured by scales of parents' education, possessions in the home, and family size.

Parents' education is the sum of the score on the two student questionnaire items "How far in school did your father go?" and "How far in school did your mother go?"¹⁰

Possessions in the home is the number of items checked from a list of 23 articles that a student reports are owned by the family. Examples from the list¹¹ are "stereo hi-fi record player," "air conditioner" and "electric dishwasher."

Family size is measured by the one student questionnaire item, "How many brothers and sisters do you have?"

When the dependent variable to be analyzed is student satisfaction with school life, one more scale is included in addition to these six in the student background cluster. This added measure is used to control for any differences in the distribution of high and low report card grades between the schools that might influence how satisfied a student is with his school situation. We are interested in whether the authority structure of the school or family affects student satisfaction with school, holding constant other factors known to be related to this outcome. Thus, report card grades (the average of math and English grades as recorded by the student on the questionnaire) is added as part of the background measures.

Analyses of Relationships

In most non-experimental studies, the determination of the relative importance of several independent variables is made difficult because the independent variables are correlated with one another as well as with the dependent variable. Multiple regression analyses are often used in non-experimental situations since these techniques do not require assumptions that the independent variables are statistically independent, assumptions which are almost never met when natural variation is involved. However, when using the multiple regression approach, the estimate of the importance

of any given variable may change depending upon whether the variable is introduced into the analysis before or after including other independent variables with which it is correlated.

There are two general ways to treat this situation. The investigator can make assumptions about the correct ordering of the variables based on a theory or model of the causal sequence that exists for the independent variables. With these assumptions, a single ordering of the variables is set for the analysis, and the results are reported under the assumptions of the theory or model. This involves assigning any explained variation held in common by two independent variables to the variable entered first in the analysis. Alternatively, the investigator can leave the question open of the causal ordering of the variables, and present the results in a way that reflects the interrelationships among the independent variables as well as their relationship with the dependent variable of interest. This method, called "commonality" or "components" analysis (Mood, 1971; Kerlinger and Pedhazur, 1973), does not assign to any one variable the common explained variation, but shows it as the joint contribution of two or more variables that cannot be separated without assumptions.

Table 1 presents the relationships without assumptions about causal priorities among the variables by showing the "unique" and "joint" contribution of background, family and school variable sets to the explained variation in the outcome measures. The "unique" contribution of each variable set is the amount of variance in the outcome accounted for when the particular set is entered last in the analysis, so that it is credited with none of the variance

it explains in common with other independent variables. The "joint" contribution is the amount of shared relationship with the outcome variable that comes about because the independent variables are themselves correlated. If the "unique" contributions of two variables are very small while their "joint" contribution is large, then it is not possible to distinguish one variable from the other with the data at hand. In this case, the variables are so confounded in the sample that their relative importance cannot be separated.

Findings

Table 1 shows that differences in school authority structure explain very little about either student outcome. With the large sample sizes involved, the unique contribution of school is significantly different from zero--meaning that there is some influence of openness on self-reliance and satisfaction with school--but it is not much greater than zero. The small contribution of the school measure is not due simply to its sharing explanatory strength with the other variables, since the joint contribution of school with the other factors is not very large either.

Family authority is another matter. Table 1 shows that there is a much stronger association between the authority structure of the family with the two student outcomes, even after the student background factors have been taken into account. The family authority variables are comparable in size to the background variables in their relationship to the outcome variables. This comparability is a further indication of the importance of family authority structure for self-reliance and satisfaction with schools, since the socioeconomic status measures that are included among the background variables are usually found to be the strongest correlates of most student outcome variables.

Table 2 shows the direction and strength of the relationship for each of the variables in the school authority, family authority, and background sets. For each student outcome, this table presents the regression coefficients and test statistics from the single multiple regression analysis that included all the independent variables.

From Table 2, we see the small significant effects of differences in school authority structure are positive. Increases in school openness are related on the average to higher self-reliance and satisfaction with school life, after the other independent variables are taken into account. The positive relationship is somewhat stronger for students' satisfaction with school than for self-reliance. While this may reflect the differences in reliability of the outcome measures, it also implies that school differences will have less effect on durable personality outcomes than on immediate student reactions of a more transitory nature.

The pattern of relationships with components of the family authority structure is complicated. Table 2 shows that when satisfaction with school life is being analyzed, both components of family authority--decision-making style and rules in the home--have strong effects but in opposite directions. The students with most influence in family decisions are more positive toward school, but those who must follow the fewest rules at home are least positive toward school. This opposite direction of relationships does not come about as a statistical artifact because of unusual results from controlling on other variables, since the same direction of relationships is strong when no statistical controls are applied. (The zero order correlation with student satisfaction is .203 and -.113 for decision-making style and rules in the home respectively; both of which are highly significant for samples of this size). While coming from a family where the

children are highly involved in decisions disposes students favorably toward school life, coming from a family with very few regulations encourages students toward a less favorable view of school life.

We do not see the same pattern of opposite effects of any significant size when student self-reliance is the outcome under study. Table 2 shows that decision-making style is positively related to self-reliance and rules in the home has no significant association with this student outcome. While it is clear that involvement in family decision-making is more important than few rules in the home as a positive influence on the development of student self-reliance, both components of family authority probably operate in the same direction. Both components have strong positive correlations with self-reliance when no statistical controls are used (zero-order correlations are .306 and .178), but one overwhelms the other when both are used in the same regression analysis as in Table 2, since they are also correlated with one another ($r = .368$).

The results from the authority measures are the main findings to be discussed in this paper. We will not comment in detail on the component variables of the background cluster, since many of the variables in this set are considerably intercorrelated, which can make the interpretations of single coefficients difficult. By and large, the direction of the large relationships in this cluster are as might be expected: higher family social class levels produce higher self-reliance and greater satisfaction with school¹²; the most satisfied students are those who have been successful in achieving high grades; age is related to both student outcomes in opposite directions with older students being much more self-reliant and somewhat less satisfied with school life.

Next, we examined the survey data for evidence of the existence of interaction effects between school and family authority structures. It is an interesting hypothesis that open schools are more influential on self-reliance and student satisfaction depending upon the kind of family from which the student comes. (Indeed, preliminary analyses of our earlier survey in the same setting had suggested that satisfaction was particularly high when there was a match of open families and open schools and that self-reliance was especially enhanced when open schooling provided an unusual experience vis-a-vis a students' family authority origins.) Several reviews of the needs of future school research have emphasized the importance of considering person-environment interactions. (For example, Berliner and Cahen, 1973).

Table 3 presents the results of the statistical tests for interactions involving family and school authority structures. This test is based on the size of the increase in variance accounted for after the interaction variable is added to the analysis (Cohen, 1968). The two interaction terms tested in this way are constructed by the product of the open school and the decision-making measures and by the product of the open school and the rules in the home measures. Neither interaction term reached a high level of statistical significance in the analysis of either self-reliance or satisfaction with school life. These data give no reason to believe that open school effects are any larger or different in direction for students from one family authority group or another.

Discussion

Schools and families are the major socializing institutions in modern society, but most of our knowledge about their influence is restricted to social class variables. Indicators of socio-economic status are the family correlates of academic and occupational attainment that receive the major attention in empirical research, and most empirical studies concerned with school effects on student outcomes have focused on the social class composition of the school environment as the major determinant. Although we probably have not yet reached the end of the road of interesting findings regarding social class influences, new variables to characterize variations in both families and school environments are badly needed to advance our understanding of the socialization process. Our initial results regarding school and family authority structures indicate some of the limits and potentials of further studies of environmental dimensions other than social class. These data make evident the limitations of using school environments in further research. Some may believe that findings from studies such as the Coleman Report (1966) seriously underestimate the potential influence of schools, either because previous research has failed to go beyond a limited number of academic outcomes measured by grades, test scores and college plans, or because the true school differences under study were very limited. These results do not support such beliefs. Significant school variations in an organizational property (authority structure) failed to show large effects on non-academic outcomes in the realm of personality development and immediate affective reactions. Moreover, the small school effects seemed uniform across family authority types: no large interaction terms were found.

It seems that school differences in a year or two cannot make much impact compared to earlier influences, even if the school differences are meaningful and the outcomes being considered are varied. Future studies of other student outcomes or school organization properties may change this generalization, but such prospects are not promising.

On the other hand, the relationships with family authority differences are large. This suggests that if environmental differences in authority structure persist over many years, their impact in the socialization process may be as important as the impact of social class characteristics. Moreover, the separate dimensions of authority structure can operate in a complex fashion, but with enough strength to be clearly evident with even crude survey measures. The fact that the level of family rules and the process of family decision-making operate strongly in different directions on student reactions to school life means that a knowledge of both aspects of family authority is needed to predict student predispositions toward specific organizational settings.

Some next steps are planned in the Johns Hopkins open school study to follow up on the results reported here. These include:

1. Cleaning of the component measures of the family authority structure, so that the separate dimensions more clearly discriminate the level of rules from the rule-making process. The same distinction will be attempted in measures of school authority between degree of restrictions and student involvement in deciding regulations.

2. Examining duration of exposure to differences in school authority structures, by developing measures with dimensions of time as well as

intensity and by investigating student transitions across grades between schools with contrasting authority systems.

3. Studies of other family-school and person-school interactions, including combinations of environmental authority and social class dimensions and combinations of the students' maturity level at the beginning of the school year with present school structure.

4. Investigations of other student outcomes, including the traditional academic variables (grades, test scores and aspirations) as well as other elements of personality development (realism and self-confidence).

FOOTNOTES

¹One exception to this generalization may be the variable of school "size" (See Barker and Gump, 1965).

²Appendix A presents the 27 items included in the scale of Student Satisfaction with School Life. Two-thirds of the students included in the survey were asked these items on their questionnaire. Under the plan for this study, in order to cover as many areas of research interest with a sufficient number of survey questions, not all students were asked all questions. There were three versions of the student questionnaire at each grade level, which were randomly distributed to students in each classroom at the time of the survey administration. Each version of the questionnaire contained a basic core of questions asked on all three versions plus questions specific to the particular version. The items forming the scale of student satisfaction with school life were included on two of the three versions of the questionnaire.

³Appendix B presents the 18 items included in the scale of Student Self-reliance. These 18 items were asked of the entire student sample in grades 6, 7, 9 and 12.

⁴The following table shows the strong correspondence between average self-reliance scores and the number of nominations received from peers for being "independent (always speaks up even if others may disagree)."

Average Student Self-reliance Score by Number
of Times Named by Peers as "Independent",
for Grades 6, 7, 9, 12

(Number in parentheses is case size)

Grade	Number of times named			F-statistic
	0	1	2 or more	
6	9.45	10.15	10.51	13.02 p < .001
	(1208)	(261)	(114)	
7	9.84	10.88	11.74	34.31 p < .001
	(1106)	(263)	(126)	
9	10.66	12.02	12.75	37.65 p < .001
	(1100)	(204)	(111)	
12	12.04	12.81	14.38	15.48 p < .001
	(762)	(94)	(50)	

⁵This is the percent who checked "Always" or "Often" to the positive questions, or the percent who checked "Seldom" or "Never" to the negative questions. Questions 2, 3, 6 and 7 are scored in the positive direction, and 1, 4 and 5 are scored negatively.

⁶Questions 1 and 2 load primarily on the first factor; 4 and 5 on the second; and 6 and 7 on the third.

⁷The check list included the following: telephone, two telephones, vacuum cleaner, stereo hi-fi record player, air conditioner, electric dishwasher, your own family washing machine, your own family clothes dryer, dictionary, encyclopedia, daily newspaper, three or more magazine subscriptions, black and white TV, color TV, car, second car, two bathrooms, tape recorder, home movie projector, home slide projector, typewriter, piano, skis or golf clubs.

The reliability coefficient (KR-8) for this scale across grades 6, 7, 9 and 12 equals .79.

⁸Appendix C presents the 12 items included in the scale of Family Decision-making style.

The reliability coefficient (KR-8) for this scale across grades 6, 7, 9 and 12 equals .71.

⁹Other researchers who have made somewhat similar distinctions about patterns of family authority include Kandel and Lesser (1970) and Elder (1968, 1971).

¹⁰The scoring used for the responses to each of these questions is:

Did not go to high school = 8
Some high school, but did not graduate = 10
Graduated from high school = 12
Technical or business school after high school = 13
Some college, but less than 4 years = 14
Graduated from a 4-year college = 16
Attended graduate or professional school after college = 18

¹¹The checklist includes: time to be in at night on weekends, time to be in on school nights, time spent watching TV, time spent on homework, against going around with certain boys, against going around with certain girls, eating dinner with the family, use of telephone, clothes you may wear, how you wear your hair, going to church or temple, doing the dishes, doing other jobs around the house, coming straight home from school.

The reliability coefficient (KR-8) for this scale across grades 6, 7, 9 and 12 equals .751

¹²When socio-economic status is a positive influence, the signs of the regression coefficient should be plus for parents' education and possessions in the home, and negative for family size.

The apparent inconsistency for possessions in the home with satisfaction is not of importance. The zero-order correlations of social class measures including possessions in the home are all in the expected direction with satisfaction. The inclusion of other independent variables in the equation creates the reversal, which probably has no meaning.

REFERENCES

- Barker, Roger G. and Paul V. Gump. Big School, Small School. High School Size and Student Behavior. Stanford, California: Stanford University Press, 1964.
- Berliner, David C. and Leonard S. Cahen. Trait-treatment interaction and learning. In Kerlinger, Fred N. (Ed.) Review of Research in Education. Itasca, Illinois: Peacock, 1973.
- Cohen, Jacob. Multiple regression as a general data-analytic system. Psychological Bulletin, 70, 1968, 426-443.
- Coleman, James S. et. al. Equality of Educational Opportunity. Washington: Government Printing Office, 1966.
- Elder, Glen H. Jr. Adolescent Socialization and Personality Development. Chicago: Rand McNally, 1968, 44-53.
- Elder, Glen H. Jr. Parent power legitimation and its effect on the adolescent. In Hill, John P. and Shelton, Jev (Eds.) Readings in Adolescent Development and Behavior. Englewood Cliffs, New Jersey: Prentice-Hall, 1971, 179-190.
- Kandel, Denise and Lesser, Gerald S. Relative influence of parents and peers on the educational plans of adolescents in the United States and Denmark. In Miles, Matthew B. and Charters, W.W. Jr. (Eds.) Learning in Social Settings. Boston: Allyn and Bacon, 1970, 283-307.
- Kerlinger, Fred N. and Elazar J. Pedhazur. Multiple Regression in Behavioral Research. New York: Holt, Rinehart and Winston, 1973, 297-305.
- McPartland, James and Joyce L. Epstein. School Organization and Student Outcomes. A Study of the Effects of Open-Environment Schools. Baltimore: Johns Hopkins University - Center for Social Organization of Schools, Report No. 166, 1973.
- Mood, A.M. Partitioning variance in multiple regression analyses as a tool for developing learning models. American Educational Research Journal, 8, 1971, 191-202.
- Walberg, Herbert J. and Susan Christie Thomas. Open Education: An Operational Definition and Validation in Great Britain and United States. American Educational Research Journal, 9, 1972, 197-208.

TABLE 1

PARTITIONING OF PERCENT OF VARIANCE ACCOUNTED FOR IN STUDENT SELF-RELIANCE AND SATISFACTION WITH SCHOOL LIFE BY SCHOOL AUTHORITY STRUCTURE (SCH), FAMILY AUTHORITY STRUCTURE (FAM) AND SIX BACKGROUND MEASURES (BACK).

Source of Variance Accounted For	Student Self-reliance (N=5661)	Student Satisfaction With School Life (N=3206)
Unique - SCH	0.11	0.31
Unique - FAM	5.76	7.25
Unique - BACK*	7.41	4.35
Joint - SCH & FAM	0.06	-0.07
Joint - SCH & BACK	1.68	0.20
Joint - FAM & BACK	2.90	1.12
Joint - SCH & FAM & BACK	1.14	0.03
Total Variance Accounted For	19.06	13.20

*Background measures are: age, race, sex, parents' education, material possessions in the home and family size. Report card grades were added to the background measures for the analysis of student satisfaction with school life.

TABLE 2

SUMMARY OF TWO MULTIPLE REGRESSION ANALYSES

(b = standardized regression coefficient; t = associated test statistic)²

Independent Variable	Student Outcome			
	Self-reliance		Satisfaction With School Life	
	<u>b</u>	<u>t</u>	<u>b</u>	<u>t</u>
School Authority:				
Openness of school	.037	2.8	.061	3.4
Family Authority:				
Decision-making style	.246	19.0	.268	14.8
Rules in the home	-.005	-0.4	-.214	-11.5
Background:				
Age	.225	19.2	-.063	-3.4
Sex ¹	-.006	-0.5	-.001	-0.1
Race ¹	-.009	-0.7	.045	2.6
Parents' education	.126	8.8	.045	2.3
Possessions in the home	.059	4.2	-.040	-2.1
Family size	-.060	-5.0	-.013	-0.8
School success (high grades)	--	--	.178	10.3

Sample size (n)	5661	3206
Multiple correlation (R^2)	.190	.132

¹Sex is scored Male = 1, Female = 0; Race is scored Black = 0, White = 1.

²The t value which is statistically significant at the .05 level is 1.96; at the .01 level is 2.57, and at the .001 level is 3.29.

TABLE 3

F - STATISTIC* FOR TWO FAMILY-BY-SCHOOL INTERACTION EFFECTS ON STUDENT SELF-RELIANCE AND SATISFACTION WITH SCHOOL LIFE.

Type of Family-by-School Interaction	Student Outcome	
	Self-reliance	Satisfaction with School Life
Rules in the home- by-Openness of School	0.75 N.S.	3.79 N.S.
Family decision-making style-by-Openness of School	0.57 N.S.	0.73 N.S.

*F - statistic is for gain in R^2 after the interaction variable is added to the 9 (or 10) other independent variables when regressed on self-reliance (or satisfaction with school life).

APPENDIX A

The 27 items in the Student Satisfaction With School Life scale, and their scoring, are the following:

A. School Satisfaction

I enjoy the work I do in class.

Always = 1, Often = 1, Sometimes = 0, Seldom = 0, Never = 0

The school and I are like:

Good friends = 1, Friends = 1, Distant relative = 0, Strangers = 0
Enemies = 0

I like school very much.

True = 1, False = 0

I am very happy when I am in school.

True = 1, False = 0

Most of the time I do not want to go to school.

True = 1, False = 0

B. Commitment

Work in class is just busy work and a waste of time.

Always = 0, Often = 0, Sometimes = 0, Seldom = 1, Never = 1

School work is dull and boring for me.

Always = 0, Often = 0, Sometimes = 0, Seldom = 1, Never = 1

In class, I often count the minutes till it ends.

True = 0, False = 1

We hardly ever do anything exciting in class.

True = 0, False = 1

I daydream a lot in class.

True = 0, False = 1

In my classes I get so interested in an assignment or project that I don't want to stop work.

Never = 0, Hardly ever = 0, Quite often = 1, Every day = 1

The work I do in most classes is:

Not at all important to me = 0, Not too = 0, Pretty important = 0, Very important = 1

Most of the topics we study in class can't end soon enough to suit me.

True = 0, False = 1

The things I get to work on in most of my classes are:

Great stuff = 1, Good stuff = 1, OK = 0, Dull stuff = 0, Trash = 0

If you could choose to take any courses at all, how many of your present courses would you take?

All = 1, More than half = 1, About half = 0, Fewer than half = 0, None = 0.

This term I am eager to get to:

All my classes = 1, Most = 1, Half = 0, One or two = 0, None = 0

C. Reactions to teachers

I wish I could have the same teachers next year.

True = 1, False = 0

How would you rate the ability of most of your teachers compared to teachers in other schools at your grade level. My teachers are:

Far above average = 1, Above = 1, Average = 0, Below = 0, Far below average = 0

Thinking of my teachers this term, I really like:

All of them = 1, Most = 1, Half = 0, One or two = 0, None = 0

This term my teachers and I are:

On the same wave length = 1, On the same planet = 1, Somewhere in the same solar system = 0, In two different worlds = 0

Most of my teachers really listen to what students have to say.

True = 1, False = 0

Teachers here have a way with students that makes us like them:

True = 1, False = 0

I feel I can go to my teacher with the things that are on my mind:

Always = 1, Often = 1, Sometimes = 0, Seldom = 0, Never = 0

Most of my teachers want me to do things their way and not my own way.

True = 0, False = 1

Most of my teachers do not like us to ask a lot of questions during a lesson.

True = 0, False = 1

Certain students in my class are favored by the teachers more than the rest.

True = 0, False = 1

The teachers in this school often act as if they are always right and you are wrong.

True = 0, False = 1

APPENDIX B

The eighteen items in the Student Self-Reliance scale, and their scoring, are the following:

<u>Items</u>	<u>Scoring</u>
I often like being by myself, because I have a lot of things I like to do alone.	F = 0, T = 1
I feel very uncomfortable if I disagree with what my friends think.	F = 1, T = 0
When the teacher tells me to keep busy on my own, I'm lost and I do not know what to do.	F = 1, T = 0
I think it will <u>not</u> be very hard for me to face "the cold, cruel world."	F = 0, T = 1
I just cannot say "No" when my friends call me to do something with them.	F = 1, T = 0
The best kind of work is where it is always clear what is to be done and how it is to be done.	F = 1, T = 0
Being popular with other people my age is more important than anything else to me.	F = 1, T = 0
Someone often has to tell me what to do.	F = 1, T = 0
If I had to write a poem, I would rather write one that rhymes than one that does not.	F = 1, T = 0
I like the kind of teacher who tells me how to do my work and doesn't leave it up to me to figure it out.	F = 1, T = 0
Even though I may not agree with my friends, I will often give in because I don't want to upset things.	F = 1, T = 0
I usually cannot get started on a writing assignment until I get some ideas from my teacher.	F = 1, T = 0
I am known as a person who will dare to be different.	F = 1, T = 0
When a new idea is needed, I am one of the first to give my opinions.	F = 0, T = 1
I hope to put off leaving my home and friends for as long as possible.	F = 0, T = 1
If I didn't like the way things were going in a group, I would not hesitate to tell the leader.	F = 1, T = 0
I would rather not have very much responsibility on a job.	F = 0, T = 1
I would like a job which has many changes from one kind of task to another.	F = 1, T = 0
I would like a job which has many changes from one kind of task to another.	F = 0, T = 1

APPENDIX C

The twelve items in the Family Decision-making Style scale, and their scoring are:

My parents are:

0= very strict

0= strict

0= a little strict

1= not at all strict

T=0, F=1 My parents want me to follow their directions even if I disagree with their reasons.

T=0, F=1 My parents often worry that I am up to something they won't like.

T=1, F=0 I do not have to ask my parents for permission to do most things.

T=1, F=0 My parents trust me to do what they expect without checking up on me.

T=0, F=1 My parents do not like me to disagree with them if their friends are around.

T=0, F=1 I often do not know why I am supposed to do what my parents tell me to do.

T=0, F=1 I often count on my parents to solve many of my problems for me.

T=0, F=1 I have a lot of loud arguments with my parents about their rules and decisions for me.

T=0, F=1 My parents treat me more like a little kid than like an adult.

How are most decisions about you usually made in your family?

0= My parents tell me just what to do.

0= My parents ask me how I feel and then they decide.

1= My parents tell me how they feel and then I decide.

1= My parents let me decide.

How much do you take part in making family decisions about yourself?

1= Very much

1= Much

0= Some

0= Very little

0= None at all